

## CLAIMS

We claim as follows:

- 1        1.    A device for stacking product, comprising:  
2                    at least one pivoting mechanism pivotable between a loading  
3                    position and an initial/final position, the at least one pivoting mechanism  
4                    retains a container thereon;  
5                    at least one corresponding diverting mechanism for injecting  
6                    product into the container, the at least one corresponding diverting  
7                    mechanism including:  
8                                a feeding area;  
9                                a diverting arm swingable between an open position and a  
10                    closed position, in the open position, the diverting arm allowing product to  
11                    enter the feeding area; and  
12                                an ejection station proximate to the feeding area, the  
13                    ejection station injecting the product into the container after the product  
14                    enters the feeding area via movement of the diverting arm.
- 1        2.    The device of claim 1, further comprising a transport system for  
2                    transporting the product to the at least one corresponding diverting  
3                    mechanism.

- 1        3. The device of claim 1, wherein the product is mail objects.
- 1        4. The device of claim 1, further comprising a continuous belt driven  
2        system proximate to the at least one corresponding diverting mechanism  
3        for transporting the product between a first and a second of the at least one  
4        corresponding diverting mechanisms.
- 1        5. The device of claim 1, wherein the at least one pivoting mechanism  
2        and the at least one corresponding diverting mechanism are at least two  
3        pivoting mechanisms and at least two corresponding diverting  
4        mechanisms and the transporting system additionally extends between the  
5        at least two corresponding diverting mechanisms.
- 1        6. The device of claim 1, further comprising a lifting device for lifting the  
2        at least one corresponding pivoting mechanism between the loading  
3        position and the initial/final position.
- 1        7. The device of claim 6, wherein the at least one corresponding pivoting  
2        mechanism includes a transporting device to transport the container  
3        between an induction transport and an exit transport.

1        8. The device of claim 1, further comprising a mechanism for indexing  
2        the container a predetermined distance on the at least one corresponding  
3        pivoting mechanism during injection of the product into the container.

1        9. The device of claim 1, further comprising a sensor which determines a  
2        position of the container on at least one of the at least one corresponding  
3        pivoting mechanism and an induction transport.

1        10. The device of claim 9, wherein the sensor is a photodiode.

1        11. The device of claim 1, wherein the at least one corresponding pivoting  
2        mechanism stacks the product in a vertical orientation within the  
3        container.

1        12. The device of claim 1, further comprising a control for controlling the  
2        movement of the diverting arm and injection of the product into the  
3        container from the ejection station.

1        13. The device of claim 1, further comprising an induction transport and  
2        an exiting transport positioned at respective ends of the at least one  
3        corresponding pivoting mechanism, the induction transport includes a

4 right angle movement device for moving the container at a substantially  
5 right angle from the induction transport onto the at least one  
6 corresponding pivoting mechanism.

1 14. The device of claim 1, wherein the ejection station includes opposing  
2 belts configured in a pinch belt configuration.

1 15. A device for stacking product, comprising: ~  
2 at least one pivoting mechanism pivotable between a first and  
3 second angled position;  
4 at least one diverting mechanism corresponding to the at least one  
5 pivoting mechanism, the at least one diverting mechanism injecting  
6 product into a container and including:  
7 a feeding area; and  
8 an ejection station comprising a pinch belt configuration  
9 that allows injection of the product into the container.

1 16. The device of claim 15, further comprising:  
2 a transport system for transporting the product to the at least one  
3 corresponding diverting mechanism;

4           a continuous belt driven system proximate to the at least one  
5           corresponding diverting mechanism for transporting the product between a  
6           first and a second of the at least one corresponding diverting mechanisms;  
7           and

8           a gripping mechanism on the at least one pivoting mechanism for  
9           retaining the container thereon when in the second angled position,

10          wherein the at least one pivoting mechanism is at least two  
11          pivoting mechanisms aligning with the first and the second of the at least  
12          one corresponding diverting mechanisms.

1           17. The device of claim 15, wherein the product is mail objects.

1           18. The device of claim 15, further comprising a lifting device for lifting  
2           the at least one corresponding pivoting mechanism between the first and  
3           second angled position.

1           19. The device of claim 15, further comprising a mechanism for indexing  
2           the container a predetermined distance on the at least one corresponding  
3           pivoting mechanism during injection of the product into the container.

1           20. The device of claim 15, further comprising a sensor which determines

2 a position of the container on at least one of the at least one corresponding  
3 pivoting mechanism and an entry transport.

1 21. The device of claim 15, wherein the diverting arm is swingable  
2 between an open position and a closed position, in the open position, the  
3 diverting arm allows product to enter the feeding area.

1 22. The device of claim 21, further comprising a control for controlling  
2 movement of the diverting arm and injection of the product into the  
3 container from the ejection station.

1 23. The device of claim 15, wherein the angled position of the at least one  
2 pivoting mechanism is approximately 35 degrees from a horizontal plane.

1 24. The device of claim 15, wherein the ejection station is positioned in a  
2 downward angle towards the at least one pivoting mechanism.

1 25. The device of claim 15, further comprising a cover positionable over  
2 the container.

1 26. A mechanism for vertical stacking product, comprising:

2           a container positioner constructed to rotate a container between a  
3           horizontal configuration and an inclined configuration; and  
4           a control operable for activating the container positioner to rotate  
5           the container from the horizontal configuration to the inclined  
6           configuration to permit product to drop in a substantially horizontal  
7           orientation into the container receptacle, and to rotate the container to  
8           position each product from the horizontal orientation to the substantially  
9           vertical orientation.

1       27.    The mechanism of claim 26, further comprising a conveyor onto  
2           which each dropped product is captured in the substantially horizontal  
3           orientation, the conveyor being constructed and arranged to drop the  
4           product into the container such that the product fall in the substantially  
5           horizontal orientation.

1       28.    The mechanism of claim 27, further comprising a divider attached  
2           to the conveyor to retain the product in a stack., the divider additional  
3           capable of pushing the product

1       29.    The mechanism of claim 27, further comprising a cover removably  
2           positioned over a top of the container, the cover being attached to one of

3 the container and the container positioner and rotates with the receptacle  
4 positioner between the horizontal configuration and the inclined  
5 configuration.

1 30. The mechanism of claim 26, further comprising a container lifting  
2 and lowering device, the container lifting and lowering device includes a  
3 support for supporting at least a portion of a bottom of the container, the  
4 container lifting and lowering device incrementally positioning the  
5 container either upwards or downwards.

1 31. The mechanism of claim 26, further comprising at least one guide to  
2 guide the product into the container, in an order.

1 32. A method for stacking product in a vertical orientation into container,  
2 the method comprising the steps of:

3 transporting a container to an injection area;  
4 angling the container to a predetermined angle greater than 0  
5 degrees from a horizontal plane;  
6 injecting product into the container in a vertically stacked  
7 orientation;  
8 indexing the container a predetermined distance;



9 continuing injecting product into the container in a vertically  
10 stacked orientation;  
11 lowering the container into the horizontal plane; and  
12 transporting the container away in the substantially horizontal  
13 plane away from the injection area.

1 33. The method of claim 32, further comprising the step determining a  
2 position of the container.

1 34. The method of claim 32, further comprising the step of controlling a  
2 flow of the product to an ejection area which injects the product into the  
3 container.

1 35. The method of claim 32, further comprising the step of determining  
2 which of several injection areas to transport the product thereto for  
3 injection into the container.

1 36. A method for dropping product in a substantially horizontal  
2 orientation in a travel path and for depositing the product into a container  
3 in a substantially vertical orientation, the method comprising:

4 rotating the container from a horizontal configuration to an  
5 inclined configuration;  
6 dropping product in a substantially horizontal orientation into the  
7 container; and  
8 rotating the container from the inclined configuration to the  
9 horizontal configuration to position each product in the container from the  
10 horizontal orientation to the substantially vertical orientation.

1 37. The method of claim 36, further comprising one of incrementally  
2 or continuously moving the product into the container, wherein the  
3 product is one of provided in a stack or singularly before falling into the  
4 container.

1 38. The method of claim 36, further comprising the step of  
2 determining an amount of product in the container.